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# TOWARD AN INTEGRATIVE SCIENCE OF THE PERSON

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■ **Abstract** To build a science of the person, the most basic question was, and remains, how can one identify and understand the psychological invariance that distinctively characterizes an individual and that underlies the variations in the thoughts, feelings, and actions that occur across contexts and over time? This question proved particularly difficult because of the discrepancies that soon emerged between the expressions of consistency that were expected and those that were found. The resulting dilemma became known as the classic “personality paradox”: How can we reconcile our intuitions—and theories—about the invariance and stability of personality with the equally compelling empirical evidence for the variability of the person’s behavior across diverse situations? Which is right: the intuitions or the research findings? In this chapter I review and discuss some of the advances made to answer this question since it was posed. These findings have allowed a resolution of the paradox, and provide the outlines for a conception of the underlying structure and dynamics of personality that seems to better account for the data.

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## INTRODUCTION

In this essay, I discuss advances made in the long search to identify and understand the invariance that characterizes personality, focusing on the consistencies that are being found in unexpected places that violate earlier assumptions that previously had guided the field. The consistencies are seen in the stable patterns of cross-situational variability, rather than constancy, which characterize the individual when behavior is examined in relation to the situations in which it occurs. These distinctive patterns of person-situation interactions, in turn, hint at the organization of the underlying system that generates them. I consider the outlines of that system, its implications for the conceptualization of personality structure, processing dynamics, and assessment, and the role of the situation in the organization and expressions of personality. This effort draws on findings on mind, brain, and behavior coming from advances in the larger science that are still waiting to be integrated into the theory and assessment of the individual as an organized, dynamic, agentic system functioning in the social world—an often-forgotten aim that motivated the study of personality in the first place.

## FINDING THE INVARIANCE—IN THE VARIABILITY

My entry into the search for the basic coherence of personality began four decades ago when I reviewed the state of the field at that time in the 1968 monograph, *Personality and Assessment* (Mischel 1968). The conclusions to which it led were upsetting because I proposed that for many years researchers had been looking in the wrong places, guided by untenable assumptions, and therefore could not find the expected results.

Beginning with Hartshorne & May's (1928) studies of conscientiousness in schoolchildren, research had been driven by the assumption that the invariance of personality would be reflected in the stable rank-ordering of individuals in their behavior on any given dimension (e.g., conscientiousness, sociability, dependency), assessed with the cross-situational consistency coefficient. The assumption was rooted in a conceptualization of individual differences in social behaviors as direct reflections of behavioral dispositions, or traits. Dispositions and their behavioral expressions were assumed by definition to correspond directly, so that the more a person has a trait of conscientiousness, for example, the more conscientious the person's behavior was expected to be over many different kinds of situations, relative to other people. Given that assumption, the persistent findings that the individual's behavior and rank order position on virtually any psychological dimension tends to vary considerably across diverse situations, typically yielding low correlations, distressed the field and changed its agenda for years.

To illustrate, in one landmark attempt, Theodore Newcomb (1929) studied extraversion-introversion in 51 boys in 21 situations in a summer camp. He laboriously collected daily records of distinctly remembered incidents such as "How

much of the time did he talk at table?” “What percent of the time did he work or play alone?” Newcomb was shocked to find that the average correlation coefficient based on daily behavior records across the situations was about 0.14. The results yielded a normal distribution with the modal point at zero—and ultimately led him to switch his career to become a social psychologist studying the culture of Bennington College.

For the next 50 or more years many other researchers followed in Newcomb's tracks, only to find similar results, creating a crisis in the paradigm (e.g., D. Fiske unpublished manuscript; Krahe 1990; Magnusson & Endler 1977; Mischel 1968, 1973; Mischel & Peake 1982; Moskowitz 1982, 1994; Nisbett & Ross 1980; Peterson 1968; Ross & Nisbett 1991; Vernon 1964). The finding that the same individual will show substantial variation as the situations vary has become a widely accepted truism—and to researchers who closely track any aspect of a person's experience, such as the salience of particular types of thoughts, feelings, and actions across diverse situations and over time, perhaps it should never have been surprising in the first place. Still controversial, however, and fundamental for the conception of personality, is how such data on the variability of behavior across contexts should be interpreted. Here researchers face two alternatives that lead in very different directions, and these two paths continue to be pursued and still define much of the research agenda in the field.

## Eliminating Context by Aggregation Across Situations

One interpretation of the data was that they reflect the noise and error of measurement, and that was the most widely accepted response to the 1968 monograph (Mischel 1968). It acknowledges the importance of situations and the low correlations in the individual's behavior found from situation to situation (Epstein 1979). It is then customary to aggregate the individual's behavior on a given dimension (e.g., “conscientiousness,” “sociability”) over many different situations to estimate an overall “true score” (as discussed in Epstein 1979, 1980; Mischel & Peake 1982; Pervin 1994). These correlations document that people differ significantly on virtually any dimension, showing stable overall individual differences: on the whole, some people are more sociable than others, some are more open-minded, some are more punctual, and so on. Such aggregate information is useful for many goals, and its strengths as well as its limits have been extensively described elsewhere (e.g., Mischel & Shoda 1998, Mischel et al. 2004).

Removing the situation by aggregation follows directly from the core assumption that guided the predominant theoretical view of personality in psychology. In that classic view, the basic qualities of the person are assumed to be independent of, and unconnected with, situations: Causal powers then are attributed either to one or to the other. Given that assumption, to find the stable basic characteristics of the person requires taking out the variability introduced by different situations, rather than focusing on it. From that perspective, a personality psychologist who took seriously the variability of the person's behavior across situations, and argued

for the need to incorporate the situation into the conception and assessment of invariance, was easily seen as trying to bury personality as a field and construct. And that is how *Personality and Assessment* (Mischel 1968) was often read: Most personality psychologists saw it as an assault to undo the field, trivializing “the power of the person” and the importance of personality, and inflating the significance of the situation as an influence on personality.

This zero-sum conception of the relationship between personality and situation, in which to the degree that the person was important in causal explanations of behavior, the situation was not, and vice versa, led to the “person versus situation” debate. It fueled a period of prolonged controversy throughout the 1970s and early 1980s, with heated but futile battles about which one accounts for the bigger variance. For many years these turf wars widened the split between subdisciplines, narrowly defined, in which personality psychologists continued to look for consistencies in the situation-free person while social psychology became devoted to demonstrating the power of the situation (Nisbett & Ross 1980, Ross & Nisbett 1991). In my view, advocates on either side of the person versus situation debate missed the point, not unlike the equally futile nature versus nurture dichotomy that for so long also obscured the need for fine-grained analyses of interactions rather than battles between reified unidirectional causal entities. In time, the need to consider both person and situation was recognized. However, systematic attention remained deflected from studying their interactions within which the understanding of both might be illuminated, with some notable exceptions (e.g., Fleeson 2001; Magnusson & Endler 1977; Moskowitz 1982, 1994; Vansteelandt & Van Mechelen 1998).

## **Incorporating the Situation into the Search for Coherence**

The alternative view of the variability of behavior and the aggregation route began with the conviction that the search for the invariance of personality needed to also incorporate findings from the cognitive revolution which already 30 years ago had begun to transform the understanding of how the human minds works. With that goal, in 1973 I proposed a set of social cognitive person variables that, rather than drawing on trait terms from the lexicon, were based on psychological constructs important in basic social, cognitive, and motivational processes (Mischel 1973). These include how the person construes (encodes, appraises) situations (including people and the self) and the beliefs, expectancies, goals, and self-regulatory competencies that became activated within the individual in the continuous stream of interactions with situations.

This approach outlined the underlying psychological processes that might lead people to interpret the meanings of situations in their characteristic ways, and that could link their resulting specific, distinctive patterns of behavior to particular types of conditions and situations in potentially predictable ways. The focus thus shifted away from broad situation-free trait descriptors with adjectives (e.g., conscientious, sociable) to more situation-qualified characterizations of persons

in contexts, making dispositions situationally hedged, conditional, and interactive with the situations in which they were expressed. A main message was then—as it still is 30 years later—that the term “personality psychology” need not be preempted for the study of differences between individuals in their global trait descriptions on trait adjective ratings; it fits equally well for the study of the distinctiveness and stability that characterize the individual’s social cognitive and emotional processes as they play out in the social world.

In this social cognitive view of personality, if different situations acquire different meanings for the same individual, as they surely do, the kinds of appraisals, expectations and beliefs, affects, goals, and behavioral scripts that are likely to become activated in relation to particular situations will vary. Therefore, there is no theoretical reason to expect the individual to display similar behavior in relation to different psychological situations unless they are functionally equivalent in meaning. On the contrary, adaptive behavior should be enhanced by discriminative facility—the ability to make fine-grained distinctions among situations—and undermined by broad response tendencies insensitive to context and the different consequences produced by even subtle differences in behavior when situations differ in their nuance (Cantor & Kihlstrom 1987; Cheng 2001, 2003; Chiu et al. 1995; Mendoza-Denton et al. 2001; Mischel 1973). In short, the route to finding the invariance in personality requires taking account of the situation and its meaning for the individual, and may be seen in the stable interactions and interplay between them (e.g., Cervone & Shoda 1999, Higgins 1990, Kunda 1999, Magnusson & Endler 1977, Mischel 1973, Mischel & Shoda 1995).

## Personality Coherence in the Pattern of Variability

To move from this interpretation to its empirical demonstration was the essential next step. Direct investigations of the role of situations and behavioral variability in the search for personality coherence have been scarce, again with few exceptions (e.g., Mischel & Peake 1982, Mischel & Shoda 1995, Shoda et al. 1994). One of these, a large field study at a midwestern college in the United States, provided some hints toward the resolution of the personality paradox. In this study, behavior relevant to “college conscientiousness” and friendliness was observed *in vivo* over multiple situations and occasions (Mischel & Peake 1982). To assure their personal meaningfulness for the participants, undergraduates from the college supplied the specific behaviors and contexts relevant to the traits in pretesting. Conscientiousness was sampled in various situations such as in the classroom, in the dormitory, and in the library, and the assessments occurred over repeated occasions in the course of the semester.

The data again were consistent with the earlier findings of researchers like Newcomb but also yielded a new lead toward the possible resolution of the paradox. Two facts emerged. On the one hand, just as Newcomb did, we also found that behaviors were highly variable across different situations. An individual might be higher than most people in a trait in some situations but also distinctively lower

than most in other situations. On the other hand, individuals also showed temporal stability in their behavior *within* particular situations that were highly similar and formed a type, or “functional equivalence class,” of situations. It was noteworthy that their perceptions of their own trait consistency were strongly related to that temporal stability, and unrelated to the variability of their behavior from one type of situation to another.

These findings suggested that the pattern of variability from one type of situation to another might not be entirely random. Specifically, if behaviors are stable within each type of situation but varied from one type to another, the pattern of the latter variation should be stable and characteristic for each individual. A person may be less agreeable than others in one type of situation, but more agreeable than others in another type, and the data suggested such difference between situations may indeed be stable, and could express something important about how the individual experiences the situations. Thus, it might be worth attending to the patterns of variability in the search for the invariance of the person. We recognized that much of the observed variation across situations is random fluctuation. But we expected that within the noise there also would be stable patterns that might provide a route for glimpsing the structure and organization of the underlying system that generates them (Mischel & Shoda 1995; Shoda & LeeTiernan 2002; Shoda et al. 1994, 2002). We decided to pursue those patterns next.

Although conspicuously absent in most personality psychology, such patterns are portrayed in virtually every character study in literature, revealing as they unfold the protagonists’ underlying motivations and character structures, and making them come alive. As a simple example, suppose two people display the same overall average level of a type of behavior, such as aggression, but vary in their pattern of *where* it is displayed (Shoda et al. 1989, 1993b). Suppose that one is highly aggressive with individuals over whom he has power, but is exceptionally friendly and nonaggressive with those who have power over him, whereas the other person shows the opposite pattern. Even if on average their aggressiveness score is the same, if their distinctive patterns remain stable when observed repeatedly, they cannot be dismissed as chance fluctuations or errors of measurement. And they begin to provide clues about differences in their motivations, goals, and other characteristics, which would be lost if one only aggregates their behavior across these different situations. Although attention to patterns like this helps to define the dynamics that motivate complex behavior patterns (e.g., Kunda 1999), they are obscured when the context is aggregated out in the search for the invariance of personality.

## **Looking for Coherence in the Variability: Empirical Evidence from Directly Observed Behavior Patterns**

There are good reasons why systematic studies to determine if these patterns are stable and meaningful aspects of personality invariance were slow to be done. They call both for a change in the core assumptions that traditionally guided the

search and, at the empirical level, for a massive data archive of in vivo behavior observations to trace the individual's behavior across multiple situations and over time. Such data are not only extremely costly and time-consuming to obtain but also require techniques for voluminous data gathering and analysis that were not available in earlier years in pioneering studies like those by Hartshorne & May and Newcomb.

To search for the order that might underlie the variability of a person's behavior across diverse situations ideally required a naturalistic site in which such observations could be almost continuously obtained over a prolonged period of time, under well-controlled field conditions. In Newcomb's classic study, a summer camp for children provided such a setting, and more than half a century later, equipped now with video cameras and computers, we conducted a follow up, again in a summer camp. In this residential camp setting and treatment program for children with a variety of behavior problems, particularly aggression and self-regulation, it was possible to directly observe the participants over many hours and weeks. Diverse measures were obtained across multiple situations and repeated occasions, under conditions that assured high reliability among well-trained observers (e.g., Mischel et al. 2002; Shoda et al. 1993a,b, 1994).

Consistent with the earlier work that led to the articulation of the personality paradox in the first place, we found again, and by now quite unsurprisingly, that individual differences (rank order positions) in behavior with regard to such dimensions as physical and verbal aggression were relatively inconsistent across different types of psychological situations (e.g., "when teased or provoked by peers" versus "when warned by adults" or "when approached positively by peers"). As expected, aggressive behavior in one type of situation did not strongly predict the individual's behavior in a different type of situation.

The role of the situation in the search for personality invariance has often been misunderstood as little more than the recognition that of course situations make a difference and they do so by changing the expected normative levels of behavior. It is self-evident that people will become more aggressive in situations in which they are provoked or teased than when they are approached positively or praised. But the novel finding of theoretical importance was that the person's rank order in relation to others *changes* systematically and predictably in different situations. The same individual who is one of the least aggressive when teased may be well known for his characteristically high level of anger and irritation when flattered and praised. Thus, individuals are characterized by distinctive and stable patterns of behavior variability across situations.

## Behavioral Signatures of Personality

The findings made clear that individuals who had similar average levels of a type of behavior (e.g., their overall aggression) nevertheless differed predictably in the types of situations in which their aggressiveness occurs. A child characterized by a pattern of becoming exceptionally aggressive when peers approach him to play,



but less aggressive than most other children when chastised by an adult for misbehaving, is different from one who shows the opposite pattern, even if both have similar overall levels of total aggressive behavior. Collectively, the results showed that when closely observed, individuals are characterized by stable, distinctive, and highly meaningful patterns of variability in their actions, thoughts, and feelings across different types of situations. These *if . . . then . . .* situation-behavior relationships provide a kind of “behavioral signature of personality” that identifies the individual and maps on to the impressions formed by observers about what they are like (Shoda et al. 1993a, 1994). Although the camp findings provide perhaps the strongest evidence for the stability of *if . . . then . . .* behavioral signatures, data from other studies (e.g., Vansteelandt & Van Mechelen 1998) are beginning to indicate that such reliable patterns of behavior variability characterize individuals distinctively as a rule, rather than an exception (e.g., Andersen & Chen 2002, Cervone & Shoda 1999, Morf & Rhodewalt 2001, Shoda & LeeTiernan 2002).

It is a type of stability that contradicts earlier assumptions about the consistency and structure of dispositions and their behavioral expressions. In the classical psychometric conception of behavioral dispositions, the individual’s “true score” on the behavioral dimension, relative to normative levels in each situation, should remain constant. Because the deviations from the true score observed in each situation are assumed to reflect measurement noise or random fluctuation, if the data are standardized and rescaled relative to the typical level of behaviors expected in each situation, the “shape” of the profile should be random over multiple times and observations. But the stable *if . . . then . . .* patterns that were found directly contradict this classic assumption, and reveal a second type of within-person consistency that needs to be assessed and explained in the search for personality invariance. The two types of variability coexist as two aspects of the expressions of coherence, seen in the elevation (Type 1), and shape (Type 2), of behavioral signatures. Each is important and informative: The need is for a theory of personality that accounts for and predicts both of them.

## SEARCHING FOR THE UNDERLYING ORGANIZATION

In sum, two types of behavioral consistency have been demonstrated and an adequate conception of personality invariance has to begin by being able to predict and account for both at least at a theoretical level. Type 1 consistency has been abundantly shown by the aggregation strategy, and has proven to be of much value, especially for the description of broad individual differences on trait ratings of what individuals “are like on the whole.” Type 2 consistency is seen in the intraindividual patterns of variability—the behavioral signatures of personality described above, which show a distinctive pattern of *if . . . then . . .* relationships. Although an account that predicts these two aspects of behavioral consistency must be the sine qua non for a comprehensive theory of personality, much more is also required. A framework for conceptualizing the invariance that distinctively characterizes the

individual and the processes that underlie it needs to also take into account the wealth of relevant findings coming from diverse areas of science and philosophy of mind. The search for the structure and organization of personality, indeed for its “architecture” (Cervone 2003), need not be restricted to models based on the lexicon and the language of traits, nor to common-sense typologies that date back to the ancient Greeks.

## Framework for a Dynamic Personality System

Gordon Allport (1937) launched the field of personality psychology to investigate how the individual person functions and is organized. He wanted to go beyond studies confined to the “operations of a hypothetical ‘average’ mind” (p. 61). If an argument for such a within-person focus is still needed, it is that social behavior and human experience is a function not just of the component information-processing mechanisms in general. It also depends on the contents of the memory and motivated meaning system that guide the person’s interpretations of situations and thus the person-situation interactions that are played out within the social world.

This recognition led to the study of person-situation interaction from the start. As Cronbach (1957) put it: “[I]f for each environment there is a best organism, for every organism there is a best environment” (p. 679). In the same vein, Kurt Lewin in his field theory observed that: “[G]eneral laws and individual differences are merely two aspects of one problem; they are mutually dependent on each other and the study of the one cannot proceed without the study of the other (Lewin 1946, p. 794).” Since then, it has been increasingly recognized that in the social sciences higher-order interactions, not main effects, tend to be the rule when the data are closely examined (Shweder 1999). In the early 1950s, George Kelly (1955), already anticipating the cognitive revolution, focused his psychology of personal constructs on the elaboration, analysis, and potential modification of the meaning systems that guide experience and action at the individual level. The challenge now is how to capture both the processes within the individual and the relevant individual differences between individuals, in light of what has been learned about basic psychological processes.

Discoveries about mind, brain, and behavior that have vitalized psychological science in the last few decades are providing insights into such directly personality-relevant processes as memory, attention control, and executive functions including planning and conflict-monitoring, emotion and self-regulation, meta-cognition, and unconscious, automatic processing—to name a few (e.g., Cervone & Mischel 2002, Mischel et al. 2004). As the understanding of the subsystems and part-processes that collectively constitute the person’s mental and emotional architecture grows, it seems propitious to revisit the ambitious and still largely unmet goals that motivated the study of personality in the first place. That requires a focus on how the component processes within the individual operate, as it were, “in concert,” and play out in interactions with situations. It calls for a comprehensive framework

that draws on diverse disciplines to integrate how relevant part-processes operate together as an organized whole system within the individual functioning in the social world.

In cognitive science, the development of models of the mind, inspired by work on neural networks that deal with knowledge and memory, appear promising for a meta-system of the individual's distinctive mental and emotional processes operating in concert at the molar level (e.g., Anderson & Lebiere 1998). They seem promising in part because they avoid many of the problems that made earlier computer-based information-processing models inappropriate for dealing with the human mind. They do not require a central control plan, they do not assume that information is first stored and then retrieved (rather than contextually reconstructed), and they do not assume serial processing. On the positive side, they do seem able to deal with the concurrent operation of multiple processes at varying levels of awareness. They do deal with the interactions among diverse mental and emotional representations with each other and in response to stimulus features from the situations that are encountered and generated by the system.

In these systems, concepts are not stored as discrete units, but rather are represented by different patterns of activation across many units. Consequently, concepts or memories represented by different patterns of activation across many units are not retrieved intact from storage, but instead are reconstructed each time there is activation in the system, and the reconstruction depends in part on the context in which it occurs. Any reconstruction will be imperfect and influenced by the person's other knowledge and the particular context and circumstances (Mischel & Morf 2003). And because the whole system is connected and each unit can be involved in the representation of many different concepts, whenever one part is activated, other parts are affected also and possibly changed. For example, various beliefs are linked to each other, forming a meaning system in which one belief supports another to make sense of the world. Further, components of a belief system are connected to affective reactions, goals, and potential behavioral strategies within the larger organized system, functioning as a coherent organic whole.

A major advantage of these systems is that they are able to generate exceedingly complex behavior patterns as a function of the network of relationships among the units within them. They allow parsimonious analyses of personality processes and their behavioral expressions without having to strip away their complexities and contextualized, interactive nature. Especially relevant for a processing approach to personality, such models can account for a system that is predisposed in distinctive ways by its biological (e.g., temperament, genetic predispositions) and psychosocial-developmental history. The patterns of thoughts, feelings, and behavior that are generated are constrained and guided by the existing network in nonrandom, at least partially predictable ways, that are seen in the behavioral signatures that characterize the individual (Mischel & Shoda 1995, Shoda & Mischel 2000). More than a promissory note, these models seem to produce coherent and adaptive, meaningful patterns of behaviors that reflect the dynamic interplay among multiple processes (Kashima & Kerekes 1994, Kunda & Thagard

1996, Read & Miller 1998, Shoda & Mischel 1998, Smith & DeCoster 1998), and that allow a systematic account of self-regulation and proactive, goal-directed, agentic behavior (Mischel & Morf 2003).

**THE CAPS MODEL** The Cognitive-Affective Processing System, or CAPS (Mischel & Shoda 1995, Shoda & Mischel 1998), was developed as an exemplar of this kind of framework intended to predict the two types of behavioral consistency discovered in personality research. According to this model, the personality system contains mental representations whose activation leads to the behavioral consistencies that characterize the person. These representations consist of diverse cognitive-affective units or CAUs, which include the person's construal and representations of the self, people, and situations, enduring goals, expectations-beliefs, and feeling states, as well as memories of people and past events. For a given person, some of these representations are more available and highly accessible, while others are less accessible or available (Higgins 1996).

What determines the adaptive responses of such a system to different situations and generates the two types of behavioral consistency? The answer we thought calls for a system in which the CAUs are not isolated, but rather are interconnected and organized, guided by a stable network of cognitions and affects characteristic for that individual (Mischel & Shoda 1995). It is assumed that individuals differ stably in this network of interconnections or associations. Individual differences in this model reflect differences both in the chronic accessibility of CAUs and in the distinctive organization of interrelationships among them within each individual. As the person experiences situations that contain different psychological features, different CAUs and their characteristic interrelationships become activated in relation to these features. Consequently, the activation of CAUs changes from one time to another and from one situation to another. The change occurs not only within the individual psychologically but also in what is expressed and enacted interpersonally so that, for example, the "self" activated in relation to mother when visiting the family for the holidays is different from the one salient in relation to one's partner on the drive home (e.g., Andersen & Chen 2002, Zayas et al. 2002). Although cognitions and affects that are activated at a given time change, *how* they change, that is, the sequence and pattern of their activation, remains stable, reflecting the stable structure of the organization within the system (Mischel & Shoda 1995, Shoda & Mischel 1998). The result is a distinctive pattern of *if . . . then . . .* relations, or behavioral signatures, manifested as the individual moves across different situations.

Computer simulations have demonstrated that this type of system generates both Type 1 and Type 2 behavioral consistency: It generates unique and stable profiles of variability, reflected in *if . . . then . . .* behavioral signatures, as well as mean differences in the average levels of these profiles (Shoda & Mischel 1998, 2000; Shoda et al. 2002). The CAPS conceptualization of personality as a stable and distinctive network of knowledge representations explicitly predicts, and can account for, the seeming inconsistencies in people's behaviors across situations

that have so long been perplexing in the pursuit of the consistency of personality. It makes variability of behavior across situations an essential reflection of the stable personality system and indeed its distinctive signature.

**RESOLUTION OF THE PERSONALITY PARADOX: LINKING THE INTUITION OF CONSISTENCY TO THE STABILITY OF BEHAVIORAL SIGNATURES** If behavioral signatures are meaningful reflections of personality invariance, they also should be linked to perceptions and intuitions about one's own consistency. To test this expectation, the relationship between the stability of *if . . . then . . .* signatures that characterize an individual in a particular domain of behavior and the self-perception of consistency was closely examined empirically. The results spoke directly to the personality paradox, and allowed a fresh look at the behavioral roots for the perception of personality consistency.

With that goal, the data used in the study of conscientiousness and sociability in college students (Mischel & Peake 1982) were reexamined to test the hypothesis that the students' perceptions of their consistency would be predicted by the intraindividual stability of their behavior signatures. In fact, those who perceived themselves as consistent with regard to the trait did not show greater overall cross-situational consistency in their behavior than those who did not, as measured by their rank-order positions across different trait-relevant situations. In contrast, as expected, their perceptions of trait consistency were linked closely to the stability of their behavioral signatures for the trait-relevant behaviors. For individuals who perceived themselves as consistent in conscientiousness, the average *if . . . then . . .* signature stability correlation was near 0.5, whereas it was trivial for those who saw themselves as inconsistent (Mischel & Shoda 1995). This suggests that when asked about their behavioral consistency, people may base their impressions on the inferred motivations, beliefs, values, and other mental qualities that account for and explain those behaviors. If so, the impression of consistency should be linked to the stability of the behavioral signatures that reflect the underlying mental system.

In fact, a growing body of research suggests that intuitive perceivers seem to be more sophisticated personality theorists than most experiments in person perception have allowed them to be. They spontaneously use contextual information in subtle ways (Trope 1986), and their impressions of people are linked to the *if . . . then . . .* behavioral signatures of the perceived, interpreted as indicators of their underlying motivations and meanings (e.g., L.K. Kammrath, R. Mendoza-Denton, & W. Mischel, manuscript in preparation; Shoda et al. 1993a). To explain the responses of significant others in their lives, peoples' intuitive lay theories include beliefs about their *if . . . then . . .* psychological states—"If Bill wants to create a good impression, *then* he acts friendly" (Chen 2003). They make inferences about the underlying stable personality system that generates and explains observed behavioral signatures when they are given the data to do so, and the motivation for expending the effort (Chen-Idson & Mischel 2001, Shoda et al. 1989). Collectively, the findings suggest that *if . . . then . . .* relations are basic units in lay conceptions

of personality (Chen 2003), and are used to infer the underlying mental states and personality characteristics that account for them.

In sum, presumably the impressions of others, as well as of the self, are linked to the observed or inferred stability of their behavioral signatures that serve as diagnostic indicators of the underlying system that generates them. But to reveal these lay theories of personality requires that perceivers have the opportunity to observe the behaviors of the perceived across diverse situations. In most experiments on person perception and impression formation, such information is absent. When people do have the chance to observe behavioral signatures, rather than discounting the situation as classic attribution theory expects, they use them instead to infer the underlying motivations and characteristics of the perceived (e.g., Cantor et al. 1982, Chen-Idson & Mischel 2001, Wright & Mischel 1988, Vonk 1998). Furthermore, stable patterns of variations lead to a greater, rather than diminished, sense of personality coherence (Plaks et al. 2003).

In retrospect, the intuition of consistency turns out to be neither paradoxical nor illusory: It is linked to behavioral consistency but not the sort for which the field was searching for so many years, and it was found by incorporating the situation into the search for invariance rather than by removing it. The personality paradox is resolved, or rather dissolves, when the assumptions about the nature, locus, and expressions of personality consistency are revised to better fit the data and state of the science.

## **A Next Challenge: Organization and Dynamics of Personality Systems?**

If personality is conceptualized as a dynamic cognitive-affective processing system, new questions and research challenges quickly arise about its structure, organization, and processing dynamics. What characterizes the patterns of activation among the cognitive-affective units that distinguish particular individuals and types and that underlie their behavioral signatures? How do the person's distinctive meaning and motivational systems, and the action patterns to which they lead, interact with the psychological features of situations in which they become activated? What are the executive and cognitive attentional control mechanisms and strategies that enable the individual to self-regulate adaptively and engage in proactive sustained goal pursuit?

CAPS was cast as a meta-theory of the person as an organized, coherent system, designed to facilitate and invite questions about how the specifics of its multiple constituent components and subsystems and processes interact and exert their influences (e.g., Cervone 2003). These components do not operate in isolation, nor do they have equal weights, but are organized hierarchically in terms of their importance for the functioning and maintenance of the priorities and goals of the system as a whole. The nature and organization of the goal hierarchies and self-regulatory strategies in goal pursuit that characterize the system are being explored by research into the behavioral signatures and processing dynamics of different

personality types, such as the narcissistic type and the anxious rejection-sensitivity type.

**PERSONALITY TYPES: DISTINCTIVE PROCESSING DYNAMICS AND BEHAVIORAL SIGNATURES** In this framework, a personality type consists of people who share a common organization of relations among mediating units in the processing of certain situational features. The types are defined in terms of characteristic social cognitive and affective processing dynamics that generate characteristic *if . . . then . . .* patterns of thoughts, feelings, and behavior visible in distinctive types of situations. To illustrate, the rejection-sensitivity type (Downey et al. 2000, Feldman & Downey 1994) describes individuals who have intense anxieties about interpersonal rejection and abandonment that become evident if they encounter in their intimate relationships what could be construed as uncaring behavior (e.g., partner is attentive to someone else). They scan interpersonal situations for possible cues about rejection, and appraise them in terms of their potential rejection threats, anxiously expecting to find them and vigilantly ready to see them. Then they tend to become excessively concerned about whether or not they are loved, and their own ruminations further trigger a cascade of feelings of anger, resentment, and rage as their fears of abandonment escalate. In response, they may activate coercive and controlling behaviors, often blaming them on the partner's actions, creating a self-fulfilling prophecy in which fears of abandonment become validated by the rejections that they in part generate for themselves. Nevertheless, on the whole, they may not be more likely than others to express anger, disapproval, and coercive behaviors, and under some conditions can be exceptionally caring and thoughtful to their partners.

Rejection-sensitive people appraise interpersonal situations, especially in intimate relationships, anxiously to see how likely they are to be rejected and hurt, magnifying the potential threats and ready to overreact to them. In contrast, narcissists seem to see the same situations as challenges for eagerly showing off how good they are, affirming and bolstering their grandiose self-concepts by outdoing the other person. Likewise, they easily create posthoc interpretations of experiences that ingeniously amplify the positive feedback to them while discounting the negative to a greater degree than most people. These examples are part of a pattern of distinctive mechanisms that characterize their efforts at self-affirmation (Morf & Rhodewalt 2001). Once the outlines of such personality signatures become clear, the route opens to exploring the psychological processes and the social and biological histories that underlie them, and the mechanisms through which they are maintained or open to change.

Personality assessment in a CAPS framework leads to the construction of typologies based on distinctive processing dynamics and personality signatures that are linked to the types of situations in which they are likely to be expressed. A goal of such a typology is to enable specific predictions about how people of a particular type, that is, people who have similar processing dynamics, are likely to think, feel, and behave in certain kinds of situations. This ambition, articulated years ago (e.g.,

Bem 1983), is now beginning to be actively pursued (e.g., Mendoza-Denton et al. 2002, Shoda 2003, Vansteelandt & Van Mechelen 1998). It provides a route to explore systematically the processing dynamics of selected types, their psychosocial and biological histories, current functioning, and potential future outcomes. It also raises questions about possible therapeutic interventions and self-generated efforts to modify the system's dynamics constructively when desired and possible.

**IDENTIFYING THE ACTIVE INGREDIENTS OF SITUATIONS** The development of typologies of processing dynamics and structures requires not only incorporating situations into the study of persons but also going beyond their surface features or nominal characteristics (such as in the hallway, in classroom) to capture their psychologically active ingredients (Shoda et al. 1994). These are the features of the situation that have significant meaning for a given individual or type, and that are related to the experienced psychological situation—the thoughts and affects and goals that become activated within the personality system. The key for achieving generalizability is to identify psychological features of situations that play a functional role in the generation of behaviors, and that are contained in a wide range of nominal situations (Shoda et al. 1994, Wright & Mischel 1988). The aim in this type of analysis is to capture those features that are encoded by perceivers in characteristic ways and that activate other relevant social cognitive person variables (e.g., expectancies and goals) in the mediating process (Wright & Mischel 1988).

To the degree that particular sets of such active ingredients or psychological features for an individual (or for a personality type) are imbedded in diverse nominal situations (e.g., at woodworking in camp, on the playground at school, at mealtime at home), it becomes possible to predict behavior across those seemingly different situations and contexts, allowing much broader predictability even for quite specific behavioral manifestations (Mischel & Shoda 1995, 1998; Shoda et al. 1994). The importance of finding these features and elaborating their meaning for the individual has long been recognized (e.g., Kelly 1955). The encouraging development is that new methods are becoming available to facilitate analyses of active ingredients of situations (e.g., Shoda & LeeTiernan 2002, LeeTiernan 2002). These innovations make it possible to go beyond the single case to identify types of individuals for whom particular sets of features have common meanings and activate similar processing dynamics (Ayduk et al. 1999, Cervone & Shoda 1999, Shoda 2003, Wright & Mischel 1987).

**WHEN THE "SITUATION" IS ANOTHER PERSON** The CAPS analysis provides not only a model of the person but also of situations when they consist of other people. In a close relationship, one person's behavioral output becomes the other person's situational input, and vice versa, forming a dyadic system. To the degree that each partner's personality is characterized by a stable *if . . . then . . .* behavioral signature, it becomes possible to model the interactions between them, and to predict the "personality" of the interpersonal system they form, characterized by its own distinctive relationship signature and dynamics.



Intuitively, a long-term interpersonal relationship is sometimes said to have its own personality that becomes more than simply an average of the personalities within it; witness the unlikely combinations that may work best because their “chemistry” is right. The CAPS analysis allows one to model these emergent qualities of relationships, and their links to the personalities of the individuals as their interpersonal systems evolve. In a CAPS demonstration study, each individual was modeled by a stable and distinct *if . . . then . . .* pattern or “behavioral signature,” where “if” is the psychological features present in a situation, and “then” is the cognitions and affects that become activated by them (Shoda et al. 2002). This conceptualization of an individual makes it possible to explicitly model the process by which the “personality” of relationships emerges out of the interactions among individuals. Computer simulations using a parallel constraint satisfaction network illustrated how each interpersonal system formed by a combination of two individuals generates predictable and distinctive behaviors and patterns of interactions. The model and the computer simulation predicts that the cognitive and affective states that an individual experiences in a given relationship are an emergent property of that interpersonal system, not a simple combination or average of the personalities of the individuals.

Such predictions illustrate another direction for this type of processing analysis. They lead to empirical studies of the emergent qualities of interpersonal relationships that ultimately may allow *specific* predictions about the cognitions, affects, and behaviors of an individual in a given relationship, based on information about the partner. In a loose analogy, the possibility is not unlike that of chemistry, in which the “behaviors” of substance A in reaction to substance B are predicted by knowing the molecular structures of both. Understanding and empirically assessing each individual’s cognitive-affective system may be a step toward being able to predict the “chemistry” of interpersonal systems, as well as that of the individual in interaction with the important situations of life. A great deal has been learned about situations, making it possible to construct a taxonomy of them, as illustrated by Harold Kelley and colleagues (2003) in their *Atlas of Interpersonal Situations*. An interesting next step may be to link those interpersonal situations to the psychological chemistry of their participants.

Just as the personality of interpersonal systems can be understood as an emergent quality, the *if . . . then . . .* behavioral signature that characterizes an individual itself is an emergent quality, arising from interactions among the components of the person’s cognitive-affective processing system. This points to still another line of empirical studies to assess the distinctive network of associations among the components, now with the benefit of modern social cognitive techniques (e.g., priming, Implicit Association Test) to permit subtler assessments that go well beyond self-reports. Theoretically, some of the *if . . . then . . .* behavioral signature expected to be generated by an individual can then be predicted, for example by using a computer simulation of that person’s network, based on the empirically derived assessment of the network connection patterns (Shoda et al. 2002).

**ROLE OF SELF-REGULATION AND SELF-REGULATORY COMPETENCIES** An organized, coherent system does not imply the absence of internal conflicts. Conflicting goals and seemingly inconsistent behavior tendencies observable in different contexts and domains may be understood in terms of the concurrent operation of different goals and different motives functioning at different levels of the system, jointly exerting their influences in self-regulation. That raises questions about the kinds of problematic organization that produce fragmentation, compartmentalization, debilitating anxiety, and other potentially negative outcomes and self-defeating behavior patterns. Conversely, it leads to questions about the cognitive, attention, and brain processes essential for adaptive self-regulation in the face of strong temptations and immediate “hot” situational triggers that elicit impulsive, automatic responses that threaten the individual’s pursuit of more important distal goals (e.g., LeDoux 1996, Metcalfe & Mischel 1999, Ochsner et al. 2002, Posner & Rothbart 2000).

Self-regulatory mechanisms and competencies are central for understanding human agency and self-directed change, as well as the coherence and stability of the individual. First, these competencies and cognitive “cooling” strategies allow people to overcome diverse momentary “hot” situational pressures in their proactive pursuit of long-term goals and life projects. They enable coping behaviors that can have long-term adaptive and protective effects. For example, self-regulatory competencies can buffer individuals against the otherwise negative consequences of their dispositional vulnerabilities, such as chronic anxious rejection sensitivity. People high in this sensitivity are at risk to develop low self-esteem and to become either aggressive or depressed when dealing with interpersonal situations that activate their rejection concerns. However, that pattern may not have to be their destiny. Highly rejection-sensitive people who also are high in self-regulatory competencies did not develop the expected negative outcomes associated with rejection sensitivity (Ayduk et al. 2002). Second, the cognitive and attention control competencies and executive mechanisms that enable self-regulation are relatively stable, and have implications for important developmental continuities and outcomes over much of the life course. For example, the number of seconds preschoolers are able to wait for a larger treat later, rather than settle for a smaller one immediately, significantly predicts long-term outcomes that range from their SAT scores and ratings of their adaptive social and cognitive functioning in adolescence to effective goal pursuit, positive self-concepts, well-being, and less cocaine drug use in adulthood (Ayduk et al. 2000, Mischel et al. 1989). The effortful control strategies tapped in the preschool delay-of-gratification task have meaningful correlates visible earlier in life. These are seen in the toddler’s attention deployment strategies when dealing with brief maternal separation in the strange situation (Sethi et al. 2000), and may have roots even earlier in infancy and temperament (Derryberry 2002).

The mechanisms that underlie effective self-regulation have been speculated about ever since Adam and Eve failed to use them, and people began to struggle with their self-defeating vulnerabilities. The convergence of research into the diverse processes—from the biological and neural to the cognitive and social—that

collectively enable adaptive self-regulation, promises to make the core mechanisms and necessary skills less mysterious and more open to change (e.g., Baumeister & Vohs 2004). That also increases the hope that ultimately people do not have to be the victims of either their predispositions or their biographies. A challenge for future research, drawing on what is being learned about the mechanisms that enable self-regulation, is to identify the interventions that can enhance the potential for human agency.

## CONCLUSION: *PERSONALITY AND ASSESSMENT* (1968) IN RETROSPECT

Not very long ago a student burst into my office to tell me that on a state licensing examination in psychology the correct response to the question, “Which psychologist does not believe in personality?” was Mischel. With that test item still in mind, I looked back at the conclusions of *Personality and Assessment*:

“Global traits and states are excessively crude, gross units to encompass adequately the extraordinary complexity and subtlety of the discriminations that people constantly make . . . The traditional trait-state conceptualizations of personality, while often paying lip service to [peoples’] complexity and to the uniqueness of each person, in fact lead to a grossly oversimplified view that misses both the richness and the uniqueness of individual lives . . . [and their] extraordinary adaptiveness and capacities for discrimination, awareness, and self-regulation” (Mischel 1968, p. 301).

I would not change those conclusions today, and if descriptions of people in terms of broad traits and states using situation-free adjectives define “personality,” the test makers need not reconsider their item.

In 1968, the limitations of traditional approaches were becoming evident, but the alternatives were just beginning to emerge. Since then, the study of personality has expanded vigorously into an increasingly interdisciplinary science, renewing the hopes with which personality psychology was founded (Cervone & Mischel 2002). The field was intended to ask the deepest questions about human nature, and to become the meta-discipline—the hub—for integrating the basic findings and general principles revealed by work at different levels of analysis within the larger science as they speak to the coherence and organization of the individual. The aim was to build on whatever was relevant, from the biological to the psychosocial and cultural, to capture the unique patterning and organization of the functioning, distinctive “whole person” (Allport 1937, 1961). The young psychological science within which personality psychology began was limited by the dominance of behaviorism on the one side, and early psychoanalytic theory on the other. In contrast, current efforts to return to the field’s original aims can build on the explosion of discoveries that have transformed psychological science in the last few decades. If so, perhaps the original hopes for the study of personality, in

which the individual is the organizing principle (Magnusson 2000) may still be realized.

The main message of my 1968 monograph was that the situation has to be incorporated into the conception and assessment of personality. In the years since, contexts and psychological situations have come to play a central role in attempts to understand mental processes and social behavior (Kagan 2003), even in their most complex forms. In a discussion of linguistic ability, George Miller (1999, p. 1) noted, "The ability to exploit context in order to determine meaning and resolve potential ambiguities" allows one to identify the intended meanings of words. That also seems to be true for how we can come to understand a person.

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## LITERATURE CITED

- Allport GW. 1937. *Personality: A Psychological Interpretation*. New York: Holt, Rinehart & Winston
- Allport GW. 1961. *Pattern and Growth in Personality*. New York: Holt, Rinehart & Winston
- Andersen SM, Chen S. 2002. The relational self: an interpersonal social-cognitive theory. *Psychol. Rev.* 109:619–45
- Anderson JR, Lebiere C. 1998. *The Atomic Components of Thought*. Mahwah, NJ: Erlbaum
- Ayduk O, Downey G, Testa A, Yen Y, Shoda Y. 1999. Does rejection sensitivity elicit hostility in rejection-sensitive women? *Soc. Cogn.* 17:245–71
- Ayduk O, Mendoza-Denton R, Mischel W, Downey G, Peake PK, Rodriguez M. 2000. Regulating the interpersonal self: strategic self-regulation for coping with rejection sensitivity. *J. Personal. Soc. Psychol.* 79:776–92
- Ayduk O, Mischel W, Downey G. 2002. Attentional mechanisms linking rejection to hostile reactivity: the role of "hot" vs. "cool" focus. *Psychol. Sci.* 13:443–48
- Baumeister RF, Vohs KD, eds. 2004. *Handbook of Self-Regulation Research*. New York: Guilford
- Bem DJ. 1983. Constructing a theory of triple typology: some (second) thoughts on nomothetic and idiographic approaches to personality. *J. Personal.* 51:566–77
- Cantor N, Kihlstrom JF. 1987. *Personality and Social Intelligence*. Englewood Cliffs, NJ: Erlbaum
- Cantor N, Mischel W, Schwartz J. 1982. A prototype analysis of psychological situations. *Cogn. Psychol.* 14:45–77
- Cervone D. 2003. The architecture of personality. *Psychol. Rev.* In press
- Cervone D, Mischel W. 2002. Personality science. In *Advances in Personality Science*, ed. D Cervone, W Mischel, pp. 1–26. New York: Guilford
- Cervone D, Shoda Y. 1999. Social cognitive theories and the coherence of personality. In *The Coherence of Personality: Social-Cognitive Bases of Consistency, Variability, and Organization*, ed. D Cervone, Y Shoda, pp. 155–81. New York: Guilford
- Chen S. 2003. Psychological state theories about significant others: Implications for the content and structure of significant-other representations. *Personal. Soc. Psychol. Bull.* In press
- Chen-Idson L, Mischel W. 2001. The personality of familiar and significant people: the lay perceiver as a social cognitive theorist. *J. Personal. Soc. Psychol.* 80:585–96
- Cheng C. 2001. Assessing coping flexibility in real-life and laboratory settings: a multi-method approach. *J. Personal. Soc. Psychol.* 80:814–33
- Cheng C. 2003. Cognitive and motivational

- processes underlying coping flexibility: a dual-process model. *J. Personal. Soc. Psychol.* 84:425–38
- Chiu C, Hong Y, Mischel W, Shoda Y. 1995. Discriminative facility in social competence: conditional versus dispositional encoding and monitoring-blunting of information. *Soc. Cogn.* 13:49–70
- Cronbach LJ. 1957. The two disciplines of scientific psychology. *Am. Psychol.* 12:671–84
- Derryberry D. 2002. Attention and voluntary self-control. *Self Identity* 1:105–11
- Downey G, Feldman S, Ayduk O. 2000. Rejection sensitivity and male violence in romantic relationships. *Pers. Relat.* 7:45–61
- Epstein S. 1979. The stability of behavior: I. on predicting most of the people much of the time. *J. Personal. Soc. Psychol.* 37:1097–126
- Epstein S. 1980. The stability of behavior: II. implications for psychological research. *Am. Psychol.* 35:790–806
- Feldman SI, Downey G. 1994. Rejection sensitivity as a mediator of the impact of childhood exposure to family violence on adult attachment behavior. *Dev. Psychopathol.* 6:231–47
- Fleeson W. 2001. Toward a structure- and process-integrated view of personality: traits as density distribution of states. *J. Personal. Soc. Psychol.* 80:1011–27
- Hartshorne H, May A. 1928. *Studies in the Nature of Character: Studies in Deceit*. New York: Macmillan
- Higgins ET. 1990. Personality, social psychology, and person-situation relations: standards and knowledge activation as a common language. In *Handbook of Personality: Theory and Research*, ed. LA Pervin, pp. 301–38. New York: Guilford
- Higgins ET. 1996. Ideals, oughts, & regulatory focus: affect and motivation from distinct pains and pleasures. In *The Psychology of Action: Linking Cognition and Motivation to Behavior*, ed. PM Gollwitzer, JA Bargh, pp. 91–114. New York: Guilford
- Kagan J. 2003. Biology, context, and developmental inquiry. *Annu. Rev. Psychol.* 54:1–23
- Kashima Y, Kerekes ARZ. 1994. A distributed memory model of averaging phenomena in personal impression formation. *J. Exp. Soc. Psychol.* 30:407–55
- Kelley HH, Holmes JG, Kerr NL, Reis HT, Rusbult CE, Van Lange PAM. 2003. *An Atlas of Interpersonal Situations*. New York: Cambridge Univ. Press
- Kelly GA. 1955. *The Psychology of Personal Constructs*. New York: Norton
- Krahe B. 1990. *Situation Cognition and Coherence in Personality: An Individual-Centered Approach*. Cambridge, UK: Cambridge Univ. Press
- Kunda Z. 1999. *Social Cognition: Making Sense of People*. Cambridge, MA: MIT Press
- Kunda Z, Thagard P. 1996. Forming impressions from stereotypes, traits, and behaviors: a parallel-constraint-satisfaction theory. *Psychol. Rev.* 103:284–308
- LeDoux J. 1996. *The Emotional Brain*. New York: Simon & Schuster
- LeeTiernan S. 2002. *Modeling and predicting stable response variation across situations*. Unpublished doc. diss. thesis. Univ. Wash., Seattle
- Lewin K. 1946. Behavior and development as a function of the total situation. In *Manual of Child Psychology*, ed. L Carmichael, pp. 791–802. New York: Wiley
- Magnusson D. 2000. The individual as the organizing principle in psychological inquiry. In *Developmental Sciences and the Holistic Approach*, ed. LR Bergman, RB Cairns, LG Nilsson, L Nystedt, pp. 33–47. Mahwah, NJ: Erlbaum
- Magnusson D, Endler NS. 1977. Interactional psychology: present status and future prospects. In *Personality at the Crossroads: Current Issues in Interactional Psychology*, ed. D Magnusson, NS Endler, pp. 3–31. Hillsdale, NJ: Erlbaum
- Mendoza-Denton R, Ayduk O, Mischel W, Shoda Y, Testa A. 2001. Person  $\times$  situation interactionism in self-encoding (*I am . . . when . . .*): implications for affect regulation and social information processing. *J. Personal. Soc. Psychol.* 80:533–44
- Mendoza-Denton R, Downey G, Purdie VJ, Davis A, Pietrzak J. 2002. Sensitivity to

- status-based rejection: implications for African-American students' college experience. *J. Personal. Soc. Psychol.* 83:896–918
- Metcalfe J, Mischel W. 1999. A hot/cool system analysis of delay of gratification: dynamics of willpower. *Psychol. Rev.* 106:3–19
- Miller GA. 1999. On knowing a word. *Annu. Rev. Psychol.* 50:1–19
- Mischel W. 1968. *Personality and Assessment*. New York: Wiley
- Mischel W. 1973. Toward a cognitive social learning reconceptualization of personality. *Psychol. Rev.* 80:252–83
- Mischel W, Morf CC. 2003. The self as a psycho-social dynamic processing system: a meta-perspective on a century of the self in psychology. In *Handbook of Self and Identity*, ed. M Leary, J Tangney, pp. 15–43. New York: Guilford
- Mischel W, Peake PK. 1982. In search of consistency: measure for measure. In *Consistency in Social Behavior: The Ontario Symposium*, ed. MP Zanna, ET Higgins, CP Herman, pp. 187–207. Hillsdale, NJ: Erlbaum
- Mischel W, Shoda Y. 1995. A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychol. Rev.* 102:246–68
- Mischel W, Shoda Y. 1998. Reconciling processing dynamics and personality dispositions. *Annu. Rev. Psychol.* 49:229–58
- Mischel W, Shoda Y, Mendoza-Denton R. 2002. Situation-behavior profiles as a locus of consistency in personality. *Curr. Dir. Psychol. Sci.* 11:50–54
- Mischel W, Shoda Y, Rodriguez M. 1989. Delay of gratification in children. *Science* 244:933–38
- Mischel W, Shoda Y, Smith RE. 2004. *Introduction to Personality: Toward an Integration*. New York: Wiley
- Morf CC, Rhodewalt F. 2001. Expanding the dynamic self-regulatory processing model of narcissism: research directions for the future. *Psychol. Inq.* 12:243–51
- Moskowitz DS. 1982. Coherence and cross-situational generality in personality: a new analysis of old problems. *J. Personal. Soc. Psychol.* 43:754–68
- Moskowitz DS. 1994. Cross-situational generality and the interpersonal circumplex. *J. Personal. Soc. Psychol.* 66:921–33
- Newcombe TM. 1929. *Consistency of Certain Extrovert-Introvert Behavior Patterns in 51 Problem Boys*. New York: Columbia Univ., Teachers College, Bur. Publ.
- Nisbett RE, Ross LD. 1980. *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice Hall
- Ochsner KN, Bunge SA, Gross JJ, Gabrieli JD. 2002. Rethinking feelings: an fMRI study of the cognitive regulation of emotion. *J. Cogn. Neurosci.* 14:1215–29
- Pervin LA. 1994. A critical analysis of trait theory. *Psychol. Inq.* 5:103–13
- Peterson DR. 1968. *The Clinical Study of Social Behavior*. New York: Appleton
- Plaks JE, Shafer JL, Shoda Y. 2003. Perceiving individuals and groups as coherent: How do perceivers make sense of variable behavior? *Soc. Cogn.* In press
- Posner MI, Rothbart MK. 2000. Developing mechanisms of self-regulation. *Dev. Psychopathol.* 12:427–41
- Read SJ, Miller LC. 1998. On the dynamic construction of meaning: an interactive activation and competition model of social perception. In *Connectionist Models of Social Reasoning and Social Behavior*, ed. SJ Read, LC Miller, pp. 27–68. Mahwah, NJ: Erlbaum
- Ross L, Nisbett RE. 1991. *The Person and the Situation: Perspectives of Social Psychology*. New York: McGraw-Hill
- Sethi A, Mischel W, Aber L, Shoda Y, Rodriguez M. 2000. The role of strategic attention deployment in development of self-regulation: predicting preschoolers' delay of gratification from mother-toddler interactions. *Dev. Psychol.* 36:767–77
- Shoda Y. 2003. Individual differences in social psychology: Understanding situations to understand people, understanding people to understand situations. In *Handbook of Methods in Psychology*, ed. C Sansone, C Morf, A Panter. Thousand Oaks, CA: Sage. In press

- Shoda Y, LeeTiernan SJ. 2002. What remains invariant? Finding order within a person's thoughts, feelings, and behaviors across situations. See Cervone & Mischel 2002, pp. 241–70
- Shoda Y, LeeTiernan SJ, Mischel W. 2002. Personality as a dynamical system: emergence of stability and consistency in intra- and interpersonal interactions. *Personal. Soc. Psychol. Rev.* 6:316–25
- Shoda Y, Mischel W. 1998. Personality as a stable cognitive-affective activation network: characteristic patterns of behavior variation emerge from a stable personality structure. See Read & Miller 1998, pp. 175–208
- Shoda Y, Mischel W. 2000. Reconciling contextualism with the core assumptions of personality psychology. *Eur. J. Personal.* 14:407–28
- Shoda Y, Mischel W, Wright JC. 1989. Intuitive interactionism in person perception: effects of situation-behavior relations on dispositional judgments. *J. Personal. Soc. Psychol.* 56:41–53
- Shoda Y, Mischel W, Wright JC. 1993a. Links between personality judgments and contextualized behavior patterns: situation-behavior profiles of personality prototypes. *Soc. Cogn.* 4:399–429
- Shoda Y, Mischel W, Wright JC. 1993b. The role of situational demands and cognitive competencies in behavior organization and personality coherence. *J. Personal. Soc. Psychol.* 65:1023–35
- Shoda Y, Mischel W, Wright JC. 1994. Intra-individual stability in the organization and patterning of behavior: incorporating psychological situations into the ideographic analysis of personality. *J. Personal. Soc. Psychol.* 67:674–87
- Shweder RA. 1999. Humans really are different. *Science* 283:798–99
- Smith ER, DeCoster J. 1998. Person perception and stereotyping: simulation using distributed representations in a recurrent connectionist network. See Read & Miller 1998, pp. 111–40
- Trope Y. 1986. Identification and inferential processes in dispositional attribution. *Psychol. Rev.* 93:239–57
- Vansteelandt K, Van Mechelen I. 1998. Individual differences in situation-behavior profiles: a triple typology model. *J. Personal. Soc. Psychol.* 75:751–65
- Vernon PE. 1964. *Personality Assessment: A Critical Survey*. New York: Wiley
- Vonk R. 1998. The slime effect: suspicion and dislike of likeable behavior toward superiors. *J. Personal. Soc. Psychol.* 74:849–64
- Wright JC, Mischel W. 1987. A conditional approach to dispositional constructs: the local predictability of social behavior. *J. Personal. Soc. Psychol.* 53:1159–77
- Wright JC, Mischel W. 1988. Conditional hedges and the intuitive psychology of traits. *J. Personal. Soc. Psychol.* 55:454–69
- Zayas V, Shoda Y, Ayduk O. 2002. Personality in context: an interpersonal systems perspective. *J. Personal.* 70:851–98

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**ERRATA**

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